

OLDMAN BOILER WORKS ,  
FABRICATING SHOP  
32 Illinois Street  
Buffalo  
Erie County  
New York

HAER No. NY-272-C

HAER  
NY  
IS-BUF  
41C-

PHOTOGRAPHS

WRITTEN HISTORIC AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD

National Park Service

Northeast Region

Philadelphia Support Office

U.S. Custom House

200 Chestnut Street

Philadelphia, P.A. 19106

HISTORIC AMERICAN ENGINEERING RECORD

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Location: 32 Illinois Street  
Buffalo  
Erie County, New York

UTM: 17.673540.4748850  
Quad: Buffalo SE, New York

Date of Construction: 1951

Architect: John G. Schwartz

Builder: Siegfried Construction Co.

Present Owner: Edward Berger dba Oldman Boiler Works

Present Use: Steel fabrication and boiler repair

Significance: The fabricating shop functions as an extension of the original 1907 boiler shop. The two sections represent changes in factory construction techniques over the first half of the 20th century, a period when Buffalo's importance as a manufacturing center and Great Lakes port reached its apex. The 1951 building houses two major pieces of shop equipment, a set of angle rolls and a hydraulic press.

Project Information: This building will be demolished for construction of the Crossroads Arena. As a mitigative measure, documentation to HAER standards was stipulated as part of negotiations among several parties including the NYS Urban Development Corporation and the NYS Office of Parks, Recreation, and Historic Preservation.

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### Description of Building

The 1951 fabricating shop addition was designed by architect John G. Schwartz of East Aurora, New York and built by Siegfried Construction Company of Buffalo.<sup>1</sup> It is a steel frame building with concrete block walls and flat rooflines. The dimensions in plan measure 117'6" x 96'8". The former figure is the east-west distance from the point of juncture with the 1907 and 1918 buildings in the Oldman Boiler Works complex; the latter number indicates the frontage of the addition along Indiana Street.

The north elevation is pierced by rectangular windows with divided lights, having steel sashes and mullions. The upper row of windows functions as an extension of the clerestory monitor on the 1907 boiler shop; however, the geometry of the roofline on the 1951 addition is exclusively rectilinear. The west elevation also contains numerous rectangular steel sash windows whose concrete sills and lintels have been painted white in an apparent effort to echo the detailing on the 1907 section. The masonry of the west elevation has been painted blue to match the other two buildings; the north and south elevations of the fabricating shop remain unpainted. Two rolling metal shutter doors, manufactured by A.O. Stillwell, provide vehicular access to the central and south bays. The center door is 18' high, the south door 16'. There is some brick infill around these doors instead of concrete block. The south elevation, which originally abutted an electric sub-station, was originally devoid of window openings. A single window has since been added near the point where the 1951 addition meets the west wall of the 1918 office/ machine shop.<sup>2</sup>

The interior of the fabricating shop addition is divided into three bays. The north bay is lower than the other two, being 20' high to the 4" reinforced concrete roof slab. This slab rests on 14" transverse steel beams and lighter longitudinal purlins consisting of 7" channels. The beams are riveted to the 10" main bay columns and to 10" girders running longitudinally atop 8" columns along the north interior wall. The north bay is 18'7" wide and features a chain hoist and trolley on a movable beam spanning the bay. The trolley can be shifted transversely on the beam which can itself be moved manually. This chain hoist beam rolls on trolley wheels along a pair of I-beam girders affixed to the aforementioned 10" and 8" columns.

The main bay is ca. 32' wide and 23'5" high to the top of the crane girder. (Note that there appears to be a 1" discrepancy in the indicated height of these crane girders that run continuously through both the 1951 and 1907 shops. It is 2' from the top of the crane girder to the base of the transverse beams beneath the ceiling. The pair of 20" girders that support the south end of the main bay crane and the north end of the crane in the south bay are combined into what is, in effect, a single box girder.

The 5-ton Shepard and P&H electric overhead travel cranes previously mentioned in connection with the 1907 boiler shop also

traverse the main bay of the 1951 shop. The cranes travel on 40 lb./yd. T-rails that are carried atop the aforementioned 20' girders consisting of I-beams that are riveted to brackets on the main bay columns. Columns in the north row of the main bay have webs 10" deep up to the crane girder bracket and 8" above that point to the ceiling. Corresponding web depths for the south main bay columns are 12" and 8" since the lower portions of these members must also support the girder for the south bay crane, as noted above.

The reinforced concrete main bay roof rests on 18" transverse beams and longitudinal 7" channels. Tension rods 5/8" in diameter connect these channels. There are 12' I-beams that also run longitudinally atop the column extensions over the crane girders.

The south bay is 43'1 5/8" wide. This space is generally similar to the main bay in its proportions and construction, except that, as built, the south roof and supporting steelwork are slightly lower. This area is commanded by another 5-ton P&H electric overhead travel crane that is controlled from the shop floor.<sup>3</sup>

#### Description of Machinery

The 1951 fabricating shop contains two significant pieces of operating equipment. At the west end of the north bay is a set of No.2 vertical angle rolls manufactured by the Buffalo Forge Co., one of the Niagara Frontier region's premier makers of industrial equipment. These rolls can bend cold steel angles up to 4" x 4" x 1/2" in size as well as bars 4" x 1". Depending on the size of the original section, the resulting rings or other circular products may have diameters of 18"-48". Larger angles up to 6" were formerly rolled up to 10' inside diameter. The longest angle that the rolls could accommodate measured 26' prior to bending.<sup>4</sup>

These sections are passed between three rollers arranged in the same general pyramidal form as the plate bending rolls: a single upper roll centered above a pair of lower rolls. (Note that in the case of the plate rolls the configuration is identified as a horizontal alignment due to the axis of the rolls. In the case of the angle rolls the product is rolled in a plane perpendicular to the floor, and the machinery is considered a set of vertical rolls.)

The top roll is adjustable through a screwdown actuated by means of the four-handled wheel on top of the machine. Adjustable "dogs," or small vertical rolls, flank the main rollers on either side. The horizontal top roll is counterbalanced, as indicated by the large round weight protruding from the west side of the machine.

The rolls originally were driven from a 25hp @ 715 rpm motor. The present model is a 20hp @ 1200 rpm Westinghouse variable-speed induction motor (Type CVV), running on 25-cycle current. A shaft from the motor carries a spur gear that meshes with a larger

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pinion, thus initiating the reduction in speed required for operating the rolls at 8 rpm, sufficient for rolling product at 35 feet per minute.

The angle rolls may well be one of the older pieces of equipment at Oldman Boiler Works, but the hydraulic press at the east end of the south bay is definitely one of the firm's newest major acquisitions. The press, No. 9428, was constructed by R.D. Wood Co. of Philadelphia. Its rated capacity is 300 tons, and its ram has a 24" stroke. The machine is equipped with an electric motor to pump fluid into the storage reservoir and press cylinder. The motor is a 25 hp General Electric model (5K1404AM1), operating on 60-cycle current. An electric-drive Ingersoll-Rand air compressor of undetermined capacity is located on a northerly extension of the platform at the top of the press. To maximize efficiency many 20th-century hydraulic presses operated on cycles where the full pressure of the fluid medium was applied only during the working portion of the stroke. Low-pressure fluid, sometimes used in conjunction with compressed air, was employed for closing the ram to the work and returning the ram to its starting position. The ram's rate of movement was also designed to occur more rapidly during the closing and opening portions of this cycle than during the actual pressing.<sup>5</sup>

Oldman Boiler Works acquired the Wood press in 1954. It is currently used in conjunction with the large bending rolls located in the 1907 boiler shop for crimping the ends of steel plates. If these ends were not crimped a distance of approximately 18" it would not subsequently be possible to bend the plate into a perfect circle since the front and back edges tend to remain straight when entering the rolls.

Significance of Building and Machinery

The importance of the 1951 fabricating shop derives from two considerations: its architectural contrasts and functional integration with the 1907 Oldman boiler shop, and the machinery housed in the addition, particularly the Buffalo Forge angle rolls. Since the newer shop opens directly into the older production area, differences between early and mid 20th century building materials and construction techniques can readily be observed. The 1951 addition provided space so Oldman could accommodate larger fabricating and repair jobs for many of the principal industries in the Buffalo area, including iron and steel plants, chemical producers, automotive manufacturers and grain milling companies. This dense web of land-based customers, many of them branch plants of major national corporations, became a key element in Oldman's postwar business strategy as a means of diversifying revenue sources beyond maritime-related specialties.

The set of vertical angle rolls is a representative example of metal fabricating machinery, probably dating from the interwar decades, by Buffalo Forge, a nationally-known supplier of such

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equipment. The company's original line of tools consisted of hand-powered post drills designed to appeal to the same blacksmiths who purchased its portable forges and blowers. The tool line eventually expanded to include tire upsetters, tire benders, billet shears and universal iron workers. Machinery for bending, punching, shearing and drilling metal constituted 5-10% of the firm's sales as late as the 1970s, but are now no longer made locally as Buffalo Forge has recently gone out of production.<sup>6</sup> The Wood press represents a later generation of the hydraulic-powered machinery that transformed the local and national boilermaking industry when the new technologies were transferred from Great Britain and subsequently modified during the late 19th century.

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NOTES

1. Permit #47320, August 23, 1951, Plans and Permits, Buffalo City Hall.
2. Drawing No. 5003-B, "North and West Elevations of Proposed New Section to Existing Fabricating Shop," Oldman Boiler Works (May 4, 1950); "Addition to Building for Oldman Boiler Works, Sheet No.3, North Elevation, West Elevation," John G. Schwartz, Architect (June 28, 1951), Oldman Boiler Works Papers, Buffalo and Erie County Historical Society (hereafter cited BECHS).
3. "Addition to Building for Oldman Boiler Works, Inc., Sheet No.2, First Floor Plan," and "Addition to Building for Oldman Boiler Works, Inc. Sheet No.4, Roof Framing Plan," John G. Schwartz, Architect (June 28, 1951), Oldman Boiler Works Paper, BECHS.
4. "Prices for Rolling Angles," Estimates Book 1951-1967, Oldman Boiler Works Papers, BECHS.
5. "W.H. Wood's New System for Operating Hydraulic Machinery," *The Boiler Maker* 5/6 (June, 1905): 180-81. For details of a later operating system see D.L. Cleveland, Hydraulic Press Manufacturing Co. to Nelson Oldman, Oldman Boiler Works, March 20, 1939, Oldman Boiler Works Paper, BECHS.
6. Buffalo Forge Company, Vertical File: Manufacturers-B, BECHS.

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Documentary sources on Oldman Boiler Works and related companies are in Oldman Boiler Works Papers, Buffalo and Erie County Historical Society.

"W.H. Wood's New System for Operating Hydraulic Machinery," *The Boiler Maker* 5/6 (June, 1905): 180-81.